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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,232	11/18/2003	Charles Sumner	ABBLUM/266/US	6752
7590 05/17/2006				
Alix, Yale & Ristas, LLP				
750 Main Street				
Hartford, CT 06103-2721				
			EXAMINER	
			DANG, THUAN D	
			ART UNIT	PAPER NUMBER
			1764	
DATE MAILED: 05/17/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,232

Applicant(s)

SUMNER, CHARLES

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-9,11-14,16,19-21,24-35 and 37-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-9, 11-14, 16, 19-21, 24-35, 37-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 6-9, 11, 16, 19, 24-26, 29-35, 37-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over “hydrocarbon processing reference” (herein after “Ref”).

Ref discloses on page 96 a process of production of ethylene by steam-cracking a hydrocarbon feedstock to produce a product containing hydrogen, methane, ethane, ethylene, C3 and heavier (see the left column of page 96).

Note that Ref discloses recycling ethane for cracking and hydrogenating the acetylene (see paragraph 4 of the left column on page 96).

Ref disclose that acetylene is hydrogenated to ethylene as recited in step (b) of claims 1 and 30.

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Clearly, this part of the Ref discloses a part of claim 1 including steps (a), (b), and (c).

The left column of page 126 of Ref disclose ethylene is dimerized to produce butene. Butene is later reacted with ethylene to produce desired propylene after which is separated from others, namely C2 by-products and C4 by-products.

Clearly, this part of the Ref discloses a part of claim 1 including steps (d), (e), and (f).

It would have been obvious to one having ordinary skill in the art who wishes to produce propylene as desire produce at the time the invention was made to have modified the teaching of Ref by integrating the parts taught by Ref as discussed above to arrive at the applicants' claimed process.

Other limitations as called for in dependent claims such as recovering by-products and desired products are also disclosed or obvious in the view of the Ref.

Response to Arguments

Applicant's arguments filed 3/1/2006 have been fully considered but they are not persuasive.

The argument that as results of the specific partial and total integration processes that are claimed, ethane will not build up in the metathesis loop as it would if the metathesis and/or dimerization reaction merely followed the C2 fractionation process is not persuasive since once these two parts (metathesis and dimerization) in the Ref are integrated, one having ordinary skill in the art would have been obvious to modifying the integrated process by recovering and recycling the components in the process. For example, ethane and ethylene are fed to appropriate locations for recovery. After recovery of these components, ethylene would be recycled to the

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metathesis for production of propylene, and ethane would be recycled to the cracking zone for production of other olefins.

Applicant argues that independent claim 45 and 35 further provide polymer grade ethylene. This argument is not persuasive since depending on the purpose of the use of the product, the purity of the product must obviously be selected to meet the demand.

Applicant argues that it appears that the Office action effectively combines three different disclosures in order to reject independent claims 1 and 2. However, the combination of processes to arrive at the applicant's claimed process is obvious.

Applicant argues the embodiments claimed do not include a vent for ethane instead of integrating the recovery of ethane and ethylene in a manner that saves equipment and energy (the top stream from the deethanizer is returned to the C2 fractionator). The argument is not persuasive since applicant does not exclude a vent for ethane from the claims.

Applicant argues that dependent claims 12, 19, and 33 allow for the elimination of a condenser for the ethanizer. However, applicant does not exclude the condenser as argued from the claims.

Allowable Subject Matter

Claims 13, 14, 20, 21, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

10716232.20060515

A handwritten signature in black ink, appearing to read 'Thuan D. Dang', with a stylized, sweeping flourish extending to the right.